



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Ocean Service  
Office of Response and Restoration  
Coastal Protection and Restoration Division  
c/o EPA Region X (ECL-117)  
1200 Sixth Avenue  
Seattle, Washington 98101

January 6, 2006

Ms. Karen Keeley  
US EPA Region X  
1200 Sixth Avenue  
Seattle, WA 98101

Re: Lower Duwamish Waterway Slip 4 Early Action Area Engineering Evaluation/Cost Analysis

Dear Karen:

NOAA appreciates the opportunity to provide comments on the Slip 4 Early Action Area Engineering Evaluation/Cost Analysis (dated December 12, 2005) prepared by Integral Consulting, Inc. NOAA is a trustee for aquatic habitats, fish and other aquatic species in the coastal areas of the United States. The Lower Duwamish provides important habitat as well as migration access to and from the Duwamish/Green River watershed for juvenile salmonids, including ESA listed Chinook. Therefore, NOAA is very interested in participating in the remedial process on the Lower Duwamish Waterway to ensure that the remedy selected is protective of NOAA trust resources.

The most protective remedy for trust resources is complete removal of PCBs from the sediments and soils. Backfilling to elevations ensuring no net loss of intertidal habitat would be preferred and would also satisfy Clean Water Act requirements. The resources would benefit and long term monitoring would not be required. The proposed Alternative 2 is not ideal in terms of the resources. It could be protective, but additional analyses are needed to better assess the adequacy of the design. In addition, some modifications in terms of the extent of the removal and technologies employed could improve the long term effectiveness and benefits.

A significant portion of the proposed alternative would involve capping without any removal of contaminated sediments. An engineered cap is proposed for a portion along the Crowley pier. The east side of the slip would not be engineered, but instead, an additional 2 feet of clean material would be placed to eliminate the need for armoring/engineering. The document discusses the need for engineering in general terms. However, what is lacking is an analysis of potential threats to determine what would be sufficient and if engineering is needed, to what degree. The impacts of propeller wash and groundwater discharge/upwelling patterns are unknown and needed to determine appropriate cap thickness and engineering requirements. If engineering is required, would an additional 2 feet of material be adequate to



compensate for the lack of engineering? NOAA recommends additional analysis and characterization of the impacts listed above. An alternative approach is to dredge the PCBs to clean and backfill.

A monitoring plan and performance measures need to be clearly defined, as well as requirements if performance measures are not met. Will the monitoring plan address recontamination as well as failure to maintain elevations targeted in the design for suitable habitat?

Treatment of banks will be addressed in the design phase once additional sampling is collected. In this document, bank or bulkhead stabilization, containment and removal are options for the design phase. Soil erosion and bulkhead failure are inevitable. Instead of relatively short term fixes through containment, NOAA recommends characterizing the nature and extent of PCB contamination in the bank soils. Subsequently, all bank soils exceeding the SQS should be removed. Although this will require more work than stabilization/containment, it's a long term solution. Considering that the County and City are interested in creating productive habitat in the slip, efforts to minimize recontamination in the future are worth the investment.

NOAA appreciates the County and City's efforts to incorporate habitat friendly concepts into the design. The most protective remedy is the one which poses the least risk for recontamination. Once the remedy is selected, modifications can be made in terms of elevations, slopes, substrate and other considerations to create desirable habitat. There are few restoration opportunities in an industrialized waterway such as the Duwamish. A productive, off channel area would be a significant improvement for trust resources. NOAA encourages the County and City to work with the trustees throughout the design phase for recommendations to improve the remedy for habitat.

#### **Specific Comments:**

**Pg 9 2.1.5** *"... significant localized and episodic currents are associated with outfall flows and propeller washing from navigation."* Under alternative 2, Crowley would continue to utilize the middle and outer berths. While these areas are not in the removal area, there most likely will be an impact from vessel traffic. There should be a discussion regarding current use in terms of the size of ships and volume of ship traffic. In addition, there should be projections on future use so this information could be used to evaluate impacts to the removal area and inform the design.

**Pg. 45 2.6.3** The document acknowledges the importance of adequate source control prior to the removal action. Ecology is the lead and will provide an assessment, but ultimately the City and King County will determine when source control is adequate to proceed. What is EPA's role in the City and County's decision-making process? Will stakeholders have opportunity to comment?

**Pg. 49 3.1.2.2** The northern 100 ft of Zone 4 contain PCB concentrations up to 127 mg/kg OC. NOAA agrees that the removal action should include this portion of the bank. NOAA recommends that in the design phase, the extent of PCB contamination above SQS should be bounded and removed instead of containment. It was noted that the bulkhead is approximately 50 years old and erosion is occurring (pg. 38). Based on the likelihood that the bulkhead will fail, erosion, and the significant level of contamination, removal is reasonable and in the long term, more protective than containment.

**Pg. 50 3.1.2.2** The southern 180ft of Zone 4 are not considered to be a significant risk based on one bank sample which did exceed the SQS. Although nearshore soil borings did not detect PCBs, a composite of 5 intertidal samples in the nearshore adjacent to BK-05 was reported at 154 mg/kg-OC. It seems reasonable that there could be a contribution from the bank soils to that intertidal area. In addition, this document notes that the bulkhead is deteriorated and some soil erosion is occurring (pg. 38). During the design phase, NOAA recommends collecting additional bank samples to understand the nature and extent of this stretch of bank and if samples do exceed the SQS, bank soils should be removed as opposed to containment.

**Pg 79 5.1.1** *"...the Natural Resource Trustees have identified the elevation ranges of +4 to +12 feet MLLW as being particularly desirable for creation/expansion of upper intertidal marsh habitat."* NOAA encourages the City and County to work closely with the trustees during the design phase to optimize the elevation and substrate to create productive habitat in the removal area. One example would be incorporating the upper intertidal elements of Alternative 1 into Alternative 2.

**Pg. 80 5.1.1** This quote describes capping for Alternative 1 and is similar for certain portions of Alternative 2. *"From Stations 2+50 to approximately 7+00, the cap would typically consist of sand or sandy gravel, and may include an armoring layer in certain areas as needed to resist erosive forces from propeller wash. The cap would extend under the Crowley pier to the edge of the rip rap so that any potentially contaminated under-pier sediments are capped."*

What is the basis for determining that the engineered cap is necessary and adequate for propeller wash? NOAA recommends further analysis in the design phase as mentioned in the general comments.

**Pg. 87 5.2.1** In Alternative 2, "dredging would be limited in scope to minimize impacts to adjacent structure and outfalls and avoid conversion of intertidal habitat to subtidal habitat." From stations 2+80 to 6+00, there will be significant levels of PCBs remaining immediately below the cap from the midpoint of the slip toward the east side of the slip. The most protective option is dredging to clean and backfilling. Conversion of intertidal to subtidal habitat can be minimized with the appropriate volume of clean material to backfill to intertidal elevations and would also satisfy CWA requirements.

Thank you for the opportunity to submit these comments. NOAA's comments identify areas of uncertainty that need to be addressed and offer modifications to the preferred alternative to make the remedy more protective. Please consider these recommendations and feel free to contact me if you have any questions.

Sincerely,

Marla Steinhoff  
Coastal Resource Coordinator, NOAA

Cc: (by email): Alyce Fritz  
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